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L6: Entry 10 of 14

File: USPT

May 8, 1990

DOCUMENT-IDENTIFIER: US 4924359 A

TITLE: Motor vehicle headlightBrief Summary Paragraph Right (2):

With a fog light of the above type, neither low-beam light distribution nor an asymmetrical 15.degree. upward slope in the light distribution is attainable. In fog lights, the occasional glare originating at the transition from one reflector shape to another is insignificant, but in a low-beam headlight, such glare is quite irritating to drivers of oncoming motor vehicles.

Brief Summary Paragraph Right (3):

The reflector for motor vehicle headlights according to the invention enables the manufacture of a sheet metal or plastic reflector equipped with a bulb having an axial coil, without a bulb shield. Such a headlight furnishes a low-beam headlight having the European standard pattern for asymmetrical low-beam light distribution, with a sharp boundary between light and dark that to the left of center extends horizontally and to the right of center slopes upward at an angle of 15.degree.. With this headlight, the entire reflector surface area is utilized, and there is a considerable increase in light flux compared with the previous embodiment of low-beam headlights having an H4 bulb with a dimmer cap, along with improved lateral dispersion and illumination of the area ahead of the vehicle. By suitably increasing the reflector surface area that defines the range of the headlight, greater intensity of illumination is attained.

Drawing Description Paragraph Right (1):

FIG. 1 is a schematic view of the back of a rectangular reflector of a low-beam headlight for motor vehicles;

Detailed Description Paragraph Right (1):

In a low-beam headlight for motor vehicles, FIG. 1 shows the back of a rectangular reflector 1, the reflector surface area of which comprises a plurality of segments, four in number in the present exemplary embodiment. The reflector 2 has an upper limiting edge 1 and a lower limiting edge 3, both extending substantially parallel to the horizontal axis 4 of the reflector and having no optical effect. A first segment 6, which adjoins the upper limiting face 2 and extends downward at an angle of up to 15.degree., beginning at the reflector axis 7 and the horizontal axis 4, and extends outward from the vertical axis 5 of the reflector 1 as far as the left limiting edge 8, is part of a paraboloid. A second segment 9, which is part of a paraboloid which is a geometrical body formed by an elliptical paraboloid determined by an ellipse in one plane and a parabola in the plane perpendicular to it, likewise adjoins the upper limiting edge 2 and extends as far as the horizontal axis 4 and from the right-hand limiting edge 11 of the reflector as far as its vertical axis 5. A third segment 12 extends from the lower limiting edge 3 upward as far as the horizontal axis 4 and extends from the right-hand limiting edge 11 as far as the vertical axis 5 of the reflector. A fourth segment 15 extends upward from the lower limiting face of the reflector as far as the sector of the first segment extending downward by 15.degree. from the horizontal axis 4, and extends from the left-hand limiting edge 8 as far as the vertical axis 5 of the reflector. The segment 15 is part of a paraboloid. This is a three-dimensional shape that has different parabola focal lengths in horizontal and vertical section; the result, at the transition from the horizontal to the vertical and vice versa, is a chain of parabola focal lengths in the axis of the reflector.

Detailed Description Paragraph Right (9):

With an asymmetrical, horizontal disposition of a reflector, the surface of the

reflector, which is utilized to define the range, can be increased in size, thus producing a higher intensity of illumination in the distance.

Current US Original Classification (1):  
362/518

Current US Cross Reference Classification (1):  
362/296

Current US Cross Reference Classification (2):  
362/297

Current US Cross Reference Classification (3):  
362/346

Current US Cross Reference Classification (4):  
362/347

CLAIMS:

1. A headlight for motor vehicles, having a reflector (1) with a reflecting surface (20) made up of a plurality of related segments, each of said segments are formed by different conical sectional curves which merge smoothly with one another and a lamp of axial extension is disposed on a vertical and horizontal axis in the reflector, said reflector comprises first and second reflector halves divided by said vertical axis through the headlight axis, said first reflector half is composed of a first lower segment (15) in the form of a second paraboloid and a first upper segment (6) formed by a second paraboloid which given asymmetrical light distribution of the headlight serves as a high beam, and said second reflector half has a second upper segment (9, 50) and a second lower segment (12) formed by conical sectional curves.

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L6: Entry 11 of 14

File: USPT

May 26, 1987

DOCUMENT-IDENTIFIER: US 4669032 A

TITLE: Low beam or fog headlamp for motor vehiclesAbstract Paragraph Left (1):

An antidazzle headlamp has a reflector which is asymmetric relative to a horizontal plane passing through an optical axis of the reflector. The contours of the reflector corresponding to vertical sections in parallel planes forming right angles with a horizontal plane passing through the optical axis, form an upper and a lower half ellipse. Both half ellipses in each vertical section have a common large axis which is staggered upward relative to the horizontal plane. In this manner an antidazzle light beam is created which guarantees an intensive and complete illumination of edges of a roadway even at a close range from the motor vehicle.

Brief Summary Paragraph Right (1):

The present invention relates to a low beam - or fog headlamp for motor vehicles. The headlamp being of the type which includes a reflector defining a vertex, an optical axis and a focal point, meridian or axial sections of the reflector forming curves of higher order, a light source arranged substantially in the focal point, a screen having an edge delimiting a light-dark boundary plane for a light beam emitted from the light source and a light projecting objective arranged in front of the screen.

Brief Summary Paragraph Right (2):

Headlamps of this kind have a large light transmission range on the one hand and provide sufficient illumination of both edges of a highway at a large distance from the vehicle; moreover it sufficiently illuminates also in a close range from the vehicle. However, at the close range the edges of the highway, especially the left-hand edge (in the case of right hand traffic) are not sufficiently illuminated.

Detailed Description Paragraph Right (4):

In another embodiment shown in FIG. 3, the reflector 30 is also asymmetrical relative to the horizontal plane passing through the focal point of the reflector. The vertical plane 15 passing through the focal point divides the reflector into a left hand half ellipse 31 and into a right hand half ellipse 31'. Both half ellipses have large axes which are tilted relative to the horizontal plane 17 by an angle 33 in such a manner that intersection point 32 of the long axis a with a corresponding half ellipse 31 or 31' is always located above the horizontal plane 17.

Detailed Description Paragraph Right (7):

FIG. 4 illustrates the light distribution of the beam or antidazzle light beam transmitted from the before-described embodiments of the headlamps of this invention. The light distribution is indicated by four isolux lines 40 projected on a measuring screen. The measuring screen indicates a horizontal central plane HH; a vertical central plane VV and an intersection point (vanishing point) HV, as well as the left hand edge 41 and a right hand edge 42 of a roadway. The light distribution indicated by isolux lines 40 near the vanishing point HV, is delimited by a light-dark boundary line 43 sloping upwardly to the right. The boundary line 43 is produced by the action of the before described optically active edge 3 of the screen 2 (FIG. 1). It is evident from FIG. 4 that both edges 41 and 42 of a roadway are sufficiently and intensively illuminated even at a close range from a motor vehicle.

Current US Original Classification (1):362/538

Current US Cross Reference Classification (1):  
362/307

Current US Cross Reference Classification (2):  
362/309

Current US Cross Reference Classification (3):  
362/518

CLAIMS:

1. A low beam or fog headlamp for motor vehicles comprising a reflector defining a vertex, an optical axis and a focal point, sections of said reflector in planes passing through said optical axis forming curves of higher order, a light source arranged at said focal point, a screen having an edge for delimiting a light-dark boundary plane for a light beam emitted by the light source, a light projecting objective arranged in front of said screen, said curves of higher order being asymmetric relative to a horizontal plane passing through said optical axis, vertical sections of said reflector in parallel planes including right angles with said horizontal plane forming closed curves, the part of respective closed curves lying above said horizontal plane defining an upper half ellipse having a small axis and the part of corresponding closed curves lying below said horizontal plane defining a lower half ellipse having a small axis of different length, and both half ellipses in the respective vertical sections having a common large axis.

5. A low beam or fog headlamp for motor vehicles, comprising a reflector defining a vertex, an optical axis and a focal point, sections of said reflector in planes passing through said optical axis forming curves of higher order, a light source arranged in said focal point, a screen having an edge for delimiting a light-dark boundary plane for a light beam emitted by the light source, a light projecting objective arranged in front of said screen, said curves of higher order being asymmetric relative to a horizontal plane passing through said optical axis, vertical sections of said reflector in parallel planes including right angles with said horizontal plane forming closed curves, the part of respective closed curves lying to the left of a vertical plane passing through said optical axis defining a left half ellipse and the part of corresponding closed curves lying to the right of the vertical plane defining a right half ellipse, large axes of respective half ellipses lying on inclined planes forming with said horizontal plane such an angle that intersection planes of the large axes with the corresponding half ellipses are above said horizontal plane.

**WEST****End of Result Set**

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L6: Entry 14 of 14

File: USPT

Sep 10, 1974

DOCUMENT-IDENTIFIER: US 3835342 A  
TITLE: RADIANT ENERGY COLLECTOR OR REFLECTOR

Brief Summary Paragraph Right (2):

It is well known that light projectors such as automobile headlights may cause considerable glare to practically blind the driver of an approaching vehicle. It is also known that this may cause accidents. Furthermore, such light projectors are inefficient because the light energy that is directed upwards is completely wasted.

Brief Summary Paragraph Right (4):

It is accordingly an object of the invention to provide a light projector capable of improving the vision of a driver of a vehicle so equipped and to avoid impairing of the vision of a driver of an oncoming vehicle.

Detailed Description Paragraph Right (13):

Referring now to FIGS. 5 and 6, there is illustrated another embodiment of the present invention which serves the purpose to further compress the top of the light beam. To this end the upper portion 38 of the first rear reflector 14 is made in the shape of an anamorphoscope. A reflecting anamorphoscope is the equivalent of a cylinder lens and has the property of compressing the light in a predetermined plane. Thus, the first rear reflector 14 is asymmetrical in shape and has a lower portion in the shape of a paraboloid and the upper portion 38 in the shape of an anamorphoscope. The envelope or housing 11 may retain its conventional parabolic shape so that the projector of the invention may be readily installed in a conventional envelope or housing.

Current US Cross Reference Classification (1):362/304